PATENT ABSTRACTS OF JAPAN

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(54) DEODORIZING MATERIAL

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a cellulose composition showing extremely good dispersibility, capable of obtaining a coating film having a uniform surface and good appearance, showing excellent deodorizing and antibacterial effect and having deodorizing capacity especially suitably used in a paint or a coating agent.
SOLUTION: The cellulose composition is prepared by carrying a metal such as copper, zinc, cobalt, nickel or a hydroxide thereof on cellulose particles, especially, spherical cellulose particles, which have a particle size of 200 μm or less and have a particle distribution wherein particles with a particle size of an average particle size ±40% occupies 70 wt.% or more, in a weight ratio of 0.1-10 wt.% with respect to cellulose particles.

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[Claim(s)]
[Claim 1]A cellulose composition thing in which particle diameter made a cellulose particle of 200 micrometers or less support metal and/or metal hydroxide and which has deodorant performance.
[Claim 2]The cellulose composition thing according to claim 1 which is 0.1 - 10wt% as a weight ratio [as opposed to cellulose particles in a support rate of metal and/or metal hydroxide].
[Claim 3]A cellulose composition thing given in Claims 1-2, wherein cellulose particles are spherical and particle size distribution closes not less than 70% of weight to **40% of mean particle diameter.

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the cellulose composition thing which is suitably used as excipients, such as a paint and a coating agent, and which deodorizes malodorous substance.
[0002]
[Description of the Prior Art]Many deodorizing materials which made the cellulosic material support hydroxide of copper, other metal, or those metal are reported conventionally. Since it has deodorization speed especially very high about the malodorous component of sulfur systems, such as hydrogen sulfide and mercaptan, and deodorizing ability power, such as (for example, JP,H1-320059,A, a 2-307475 gazette, etc.), it is used as a deodorizing material of a various application. However, since films, such as textiles things, such as pulp and rayon, the powdered thing or cellophane, are used as a cellulosic material, if these deodorizing materials are blended with a coating agent etc., There was a problem that the homogeneity and fluidity were spoiled or deodorizing ability power declined extremely.
[0003]
[Problem to be solved by the invention]Therefore, this invention makes it a technical problem to provide the cellulose composition thing which can be used conveniently and which has a deodorizing function, even if it adds to a paint or a coating agent.
[0004]
[Means for solving problem][that this invention persons should solve this technical problem] [as a result of examination] [the cellulose composition thing which supported metal, such as copper, or hydroxide of those to the spherical cellulose particulate constituent] When it added to a paint, a coating agent, etc., the uniform painted surface was given, and it found out that the trait excellent in deodorization and an antibacterial effect was shown, and resulted in this invention. . Namely, (1) particle diameter made a cellulose particle of 200 micrometers or less this invention support metal and/or metal hydroxide. [the support rate of a cellulose composition thing, (2) metal, and/or metal hydroxide which has deodorant performance] The cellulose composition thing of the above-mentioned (1) description which is 0.1 - 10wt% as a weight ratio to cellulose particles, (3) Cellulose particles are spherical and particle size distribution provides the cellulose composition thing the above (1) thru/or given in (2) closing not less than 70%

of weight to **40% of mean particle diameter.
[0005]Hereafter, this invention is explained in detail. The particle diameter the cellulose particles used for this invention 200 micrometers or less (a thing of 1 micrometers or more is preferred), Preferably, it is a thing of 50 micrometers or less more preferably, for example, 100 micrometers or less of what ground wood pulp of a natural system, hemp pulp, and a cotton linter, the regenerated cellulose particles which once dissolved the cellulose in the solvent and were fabricated to particle state, etc. can be illustrated. If particle diameter exceeds 200 micrometers, it is not only desirable, but since particles are fixed, it will need a lot of paints and coating agents, and the deodorization and the size effect on the surface of a paint film will be hard to be revealed. Since the paint film surface is uniformly formed when coating, the particle shape of the shape of a ball is preferred. It is still more preferred as particle size distribution of cellulose particles that it is not less than 70% of weight to **40% of mean particle diameter. Such cellulose particles can be easily prepared by the procedure indicated to JP,S61-241337,A etc., for example.
[0006]As the metal used by this invention, or its hydroxide, if it has deodorant performance, there will be no restriction in particular, but copper, zinc, cobalt, nickel, and those hydroxide can be illustrated, for example.
[0007][the support to these metal or the cellulose particles of the hydroxide] [for example by applying a procedure given in JP,H1-320059,A] That is, cellulose particles can be made to support colloid of copper hydroxide easily by making the solution of the copper compound of water solubility distribute cellulose particles, adding an alkaline substance to this, and setting pH to 4.5-12. according to this procedure -- per cellulose particles -- copper hydroxide -- in general -- 1 - 3wt% -- it can be made to support [by applying a procedure given in a JP,2-307475,A gazette as other procedures, for example] Namely, sulfate of metal, such as copper, zinc, cobalt, and nickel, a chloride, It can obtain easily also by adding basic nitrogen compounds, such as ammonia and an organic amine compound, to electrolytic solutions, such as a nitrate, phosphate, acetate, and hydroxide, considering it as a metal ammine complex, carrying out impregnation treatment of the cellulose particles to this, and making them it. according to this procedure -- per cellulose particles -- metal -- the form of an ion complex -- in general -- as metal weight -- 0.1 - 10wt% -- it can be made to support
[0008]As for the amount of support of these metal or hydroxide of those, it is desirable as a weight ratio to cellulose particles that it is 1 - 10wt% preferably 0.1 - 10wt%. If sufficient deodorizing function cannot be obtained but 10wt% is exceeded when the amount of support was less than 0.1wt% and it uses as excipients, it is difficult to make the cellulose support copper stably.
[0009]Although an example is given and this invention is explained hereafter, this invention is not limited to these.
[Working example]120 g of work-example 1 viscose (10% of cellulose concentration, the gamma value 50, 5% of alkali concentration), and the 10wt% solution 480g and the calcium carbonate 5g of sodium polyacrylate (degree of polymerization 200,000) were mixed at the number of rotations of 400 rpm for [bottom of room temperature] 10 minutes, and the particulates of viscose were obtained. It ****(ed) at 80 ** over about 10 minutes, and this particulate was made to solidify at 80 ** for 30 more minutes. After filtering coagulation particles with the glass filter, 0.5wt% hydrochloric acid's

neutralizing and still more superfluous water's and methanol's washing, it dried under the vacuum and cellulose spherical particles were obtained. The obtained cellulose particulate is 24 micrometers in mean particle diameter in the shape of a real ball.
78% of the whole weight was formed to **40% of mean particle diameter.
The anhydrous copper sulfate 0.46g of 200 g of ion exchange water and a reagent was added to the obtained cellulose spherical particles 10g, and it agitated for about 10 minutes with the glass rod. Agitating succeedingly, the sodium hydroxide solution of 1 mol/L was added gradually, and it was made pH 8. On the glass filter, the obtained copper support cellulose particulate was fully washed with superfluous water, subsequently vacuum drying was washed and carried out with methanol, and the cellulose composition thing of this invention was obtained. The mean particle diameter of the obtained cellulose composition thing was 24 micrometers, and the copper amount of support was 2.9wt% per cellulose.
[0010]120 g of work-example 2 viscose (10% of cellulose concentration, the gamma value 50, 5% of alkali concentration), and the 10wt% solution 480g and the calcium carbonate 5g of sodium polyacrylate (degree of polymerization 200,000) were mixed at the number of rotations of 400 rpm for [bottom of room temperature] 10 minutes, and the particulates of viscose were obtained. It ****(ed) at 80 ** over about 10 minutes, and this particulate was made to solidify at 80 ** for 30 more minutes. After filtering coagulation particles with the glass filter, 0.5wt% hydrochloric acid's neutralizing and still more superfluous water's and methanol's washing, it dried under the vacuum and cellulose spherical particles were obtained. The obtained cellulose particulate is 24 micrometers in mean particle diameter in the shape of a real ball.
78% of the whole weight was formed to **40% of mean particle diameter.
25wt% of ammonia water was added so that ammonia might become a 6 time mole of zinc sulfate in 3wt% of zinc sulfate solution, and the aqueous ammonia solution of water-white zinc sulfate tetramine was obtained. The cellulose spherical particles obtained so that it might become one 15 times the bath ratio of this at this were added, and it agitated with the glass rod for 1 minute. This was washed with the water of the overlarge with the glass filter, and the cellulose composition thing of this invention which supported zinc was obtained. The amount of zinc support of this constituent was 1.5wt% per cellulose.
[0011]Except having used Kohjin pulp powder PH-105 (2.05 mm of mean fiber length) for the comparative example 1 cellulose material, the same treatment as the example 1 of manufacture was performed, and the dry copper support cellulose powder was obtained.
[0012]Example 1 of evaluation [Paint film formation]
The metal support cellulose composition thing 2g, the 10wt% polyvinyl-alcohol (average degree of polymerization 2000) solution 50g, and the 10wt% polyethylene-glycols (average molecular weight 7500) solution 10g which were obtained by the work example 1, the work example 2, and the comparative example 1 were mixed with the glass rod, and it was considered as the coating agent. It cast into the glass plate with the doctor knife, this was cast into a thickness of 50 micrometers by a width of 10 cm x 10 cm, and it dried for 5 minutes at 100 **, and heat-treated for 3 minutes at 200 **, and the paint film which the metal support cellulose composition thing distributed was obtained. Viewing checked and estimated the dispersibility of the metal support cellulose composition thing in the paint at that time, and the homogeneity of the cellulose composition thing in a paint film. A result is shown in Table 1.

[0013]
[Table 1]

	ｺｰﾃｨﾝｸﾞ剤中での組成物の分散性	ｺｰﾄ膜中での組成物の均一性
実施例１	良好	良好
実施例２	良好	良好
比較例１	一部凝集あり	組成物が凝集し点在している

[0014]Example 2 of evaluation [Deodorization examination]
The paint film obtained in the above-mentioned example 1 of evaluation was put into the zipper-type gas pack with the glass plate, 1.5L enclosure of H50 ppm $_2$S was done, the H_2S residual percentage of 3 minutes after was measured, and the deodorization examination was done. A result is shown in Table 2.
[0015]
[Table 2]

	残留率(%)
実施例１	10
実施例２	15
比較例１	40

[0016]
[Effect of the Invention]As explained above, when the cellulose composition thing of this invention is added to a paint or a coating agent, very good dispersibility is shown, the surface of the paint film produced by carrying out the coat of it is uniform, an aspect is also good, and the outstanding deodorization and antibacterial effect are shown.

[Translation done.]